

SRSU GEOLOGY GRADUATE SEMINAR, GEOL 5101, Spring 2025: PALEOCLIMATES

Meeting time: Fridays 12:30-1:20

Professor: Dr. Jesse Kelsch

Contact: WSB 316; 432-837-8657; jkelsch@sulross.edu

Office Hours: Mondays and Wednesdays 1:30 – 4:00pm

Section I. Introduction and Course Learning Objectives

Welcome to Paleoclimates, a one-credit graduate seminar for Spring 2025. In this seminar, you will have the opportunity to learn about the Earth climate system and how its signals are recorded in geologic materials such as rocks, sediment, and ice, and in living materials like trees and corals. We will investigate peer-reviewed publications about evidence for past climates and discuss these in class, and you will research one paleoclimate event and present your synthesis of the work on that event to the class.

Some of the geologic skills and knowledge available from this class:

1. An understanding the components of and connections between Earth's climate system
2. Synthesis of published literature describing geologic evidence of past climates on Earth

SACSCOC Student Learning Outcomes

The student completing this course successfully will be able to apply a diverse body of geologic information in the area of Earth history. The student will also be able to communicate a diverse body of geologic information through the standard scientific format of an oral presentation based on a written paper.

THECB Marketable Skills

1. Student will be able to use library resources.
2. Student will be able to communicate in written and oral format.

Section II. Course Requirements and Grading

Your participation and performance in this course will be assessed from the following gradable items:

- Literature reviews (50%)
- Attendance and discussion participation (20%)
- Term presentation (20%)
- Final exam (10%)

Grades will be recorded in the Blackboard course page.

Letter grading:

Final course grade will be based on a percentage in the standard grading system:

100-90 (A), <90-80 (B); <80-70 (C), <70-60 (D), <60 (F)

Term project:

All students enrolled in the course will investigate one event in Earth's climate history that has at least five publications pertaining to it. The student will write a brief (~700-1000 word) description of this paleoclimate event with citations, and will give a 30-minute presentation during class on this event. The students may select the class day on which to give their presentation.

Literature reviews:

Peer-reviewed journal papers and online information will be assigned topically for reading and analysis ahead of the next week's class meeting. Students will submit written answers to a standard set of questions for each of these assigned papers.

Section III. University Policies, Programs, and Services

Academic Integrity

Students in this class are expected to demonstrate scholarly behavior and academic honesty in the use of intellectual property. Students should submit work that is their own and avoid the temptation to engage in behaviors that violate academic integrity, such as turning in work as original that was used in whole or part for another course and/or professor; turning in another person's work as one's own; copying from professional works or internet sites without citation; collaborating on a course assignment, examination, or quiz when collaboration is forbidden. Students should also avoid using open AI sources *unless permission is expressly given* for an assignment or course. Violations of academic integrity can result in failing assignments, failing a class, and/or more serious university consequences. These behaviors also erode the value of college degrees and higher education overall.

Student Responsibilities Statement

All full-time and part-time students are responsible for familiarizing themselves with the Student Handbook and the Undergraduate & Graduate Catalog and for abiding by the University rules and regulations. Additionally, students are responsible for checking their Sul Ross email as an official form of communication from the university. Every student is expected to obey all federal, state and local laws and is expected to familiarize themselves with the requirements of such laws.

ADA Statement

Sul Ross State University is committed to equal access in compliance with the Americans with Disabilities Act of 1973. It is SRSU policy to provide reasonable accommodations to students with documented disabilities. It is the student's responsibility to initiate a request each semester for each class. Students seeking accessibility/accommodations services must contact Mrs. Mary Schwartze Grisham, LPC, SRSU's Accessibility Services Director or Ronnie Harris, LPC, Counselor, at 432-837-8203 or email mschwartz@sulross.edu or ronnie.harris@sulross.edu. The Counseling and Accessibility office is located on the first floor of Ferguson Hall, room 112, and their mailing address is P.O. Box C122, Sul Ross State University, Alpine. Texas, 79832.

Library Information

The Bryan Wildenthal Memorial Library and Archives of the Big Bend in Alpine offer FREE resources and services to the entire SRSU community. Access and borrow books, articles, and more by visiting the library's website, library.sulross.edu/. Off-campus access requires logging in with your LoboID and password. Librarians are a tremendous resource for your coursework and can be reached in person, by email (srsulibrary@sulross.edu), or by phone (432-837-8123).

Section IV. Semester schedule

This schedule is planned and is subject to change. Student presentations may be scheduled earlier than in the last weeks if the student prefers.

Week	Week of	Class topic
1	1/15/2025	Introduction
2	1/20/2025	Earth's climat system's components, feedbacks, and forcings
3	1/27/2025	Earth's climat system's components, feedbacks, and forcings
4	2/3/2025	The geologic (long-term) carbon cycle
5	2/10/2025	Proxy climate data from Earth materials
6	2/17/2025	Proxy climate data from Earth materials
7	2/24/2025	Past climates documented in the rock record
8	3/3/2025	Glacial-interglacial cycles of the Pleistocene
9	3/10/2025	Medieval Warm Period and Little Ice Age
10	3/24/2025	Paleocene-Eocene Thermal maximum
11	3/31/2025	The Siberian Traps LIP eruptions
12	4/7/2025	Late Neoproterozoic Snowball Earth hypothesis
13	4/14/2025	Student presentation
14	4/21/2025	Student presentation
15	4/28/2025	Review
		Final exam